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LETTER REGARDING REGULATORY REVIEW AND COMMENTS ON DRAFT BACKGROUND STUDY NAS FORT WORTH TX
1/20/1998
TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

File: 17G
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NAVAL AIR STATION FORT WORTH JRB CARSWELL FIELD TEXAS

ADMINISTRATIVE RECORD COVER SHEET

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TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

January 20, 1998

Mr. Charles A. Rice
Team Chief
Base Closure Restoration Division (BRAC Sites)

Mr. Joseph R. Dunkle
Restoration Team Chief (DERA Sites)

Air Force Center for Environmental Excellence (AFCEE)
HQ AFCEE/ERB
3207 North Road
Brooks AFB, TX 78235-5363

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Re: Naval Air Station Fort Worth JRB/Carswell AFB (NAS Ft. Worth)
TNRCC Solid Waste Registration No. 65004
Hazardous Waste Permit No. HW-50289
EPA ID No. TX0571924042
Review of Draft Basewide Background Study

Notice of Partial Approval

Dear Messrs. Rice and Dunkle:

The Texas Natural Resource Conservation Commission (TNRCC) has completed our review of the Draft Basewide Background Study for Naval Air Station Fort Worth (NAS Ft. Worth) formerly Carswell AFB Volumes I and II dated January 1997 and received by the TNRCC on February 4, 1997. In addition to our review of the background study, the TNRCC also reviewed comments received from EPA Region 6 concerning the background study which were dated September 9, 1997. It is the understanding of the TNRCC's Federal Facilities Team that the upper tolerance limits (UTLs) calculated for naturally occurring inorganic compounds (metals) and proposed in the referenced basewide background study will be used "facility-wide" in conjunction with the closure/remediation of solid waste management units (SWMUs) regardless of the source of funding (e.g., BRAC or DERA) being used to close/remediate these SWMUs.

Base upon our review of the referenced background study and comments received from EPA Region 6, the TNRCC approves the proposed UTLs as listed in *Table ES-1 Summary of Background UTLs by Matrix* for surface soils, subsurface soils, groundwater **(low-stress sample collection only)** and surface water. The TNRCC does not approve the stream sediment UTLs or the groundwater UTLs established through the use of bailers. Specific comments pertaining to this review are as follows:

- *Section 2.2.5 Groundwater Sampling:* Ground water samples were collected using both low-flow sampling techniques and bailers. Ground water UTLs were independently calculated for each sampling method. The review of *Table 2-3 Field Parameter Measurements of Low-Stress Collected Samples* and *Table 2-4 Field Parameter Measurements for Bailer-Collected Samples* indicate that ground water samples collected via bailers cannot be considered representative of native ground water conditions due to unacceptably high turbidity levels. Turbidity readings for 9 of the 12 wells sampled with bailers were off the scale of the turbidity meter (e.g., > 999 NTUs); with turbidity for the other three (3) wells ranging from 110 to 730 NTUs. These same wells, when sampled using low-flow or "low-stress" methods, exhibited turbidity readings which ranged from 0 to 9 NTUs. The purpose of conducting a background study is to establish, with a certain degree of confidence and coverage, the naturally occurring concentration of inorganic (metals) constituents present in site media (soils, ground water, sediments and surface water) unaffected by waste management practices. The use of highly turbid ground water samples to calculate a background UTL will typically result in UTLs that are biased high due to the presence of clay "fines" or particulate being artificially entrained in the ground water sample as a result of the sampling procedure. These "fines" are not representative of colloidal material that may actually be mobile within the aquifer. For the majority of constituents, the UTLs calculated from bailer derived samples are higher than those calculated for the low-stress samples. Consistent with current EPA guidance and research, the TNRCC's Federal Facilities Team believes that low-flow or "low-stress" sampling provides data that is the most representative of native ground water conditions.

- It is suggested in the Executive Summary that low-flow ground water sampling "approximates filtered samples". This is incorrect. The low turbidity values typically attained with the low-flow method are the result of sampling a monitoring well in a manner that greatly reduces the introduction of artificially suspended material. Bailers on the other hand can greatly bias the sample by the introduction of artificially suspended material that is not representative of native aquifer conditions. In addition, bailers may chemically alter the sample through oxidation as well as causing the volatilization of volatile organic compound from the sample. Research has shown that low-flow sampling techniques provide more accurate and reliable ground water results than do other sampling methods.

- *Table ES-1 Summary of Background UTLs by Matrix:* The proposed stream sediment UTLs are not supported by the actual field data collected during the background study. As was the case for most of the UTLs proposed in the background study, the stream sediment UTLs were calculated on log transformed data. Unlike the UTLs proposed for other media, however, the stream sediment UTLs are typically twice the highest detected concentration in field data with some UTLs approaching four (4) times the highest detected concentration. In example, lead was detected in all eight (8) sediment samples collected with a maximum concentration of 26.9 mg/kg. The proposed UTL, however, calculated with log transformed data, is 104 mg/kg. The review of *Appendix F Statistical Calculation Support Tables* revealed that stream sediment UTLs were also calculated using the raw (actual) field data. The UTLs calculated from "raw" data appear to more closely match the actual data (e.g., for lead, a UTL of 35.6 mg/kg versus 104 mg/kg). The use of UTLs calculated on the raw data would seem to be an acceptable alternative to the proposed log-based UTLs.

January 20, 1998

As stated above, the TNRCC's Federal Facilities Team believes that the ground water UTLs calculated from samples collected via the low-flow or "low-stress" ground water sampling technique are the most representative of native or background aquifer conditions. The UTLs calculated for low-stress sampling should be used to evaluate solid waste management units (SWMUs) for releases to the environment. SWMUs for which past ground water sampling data were developed via bailers should first be evaluated against the approved "low-stress" UTLs. If this evaluation indicates a statistically significant exceedance of background, the use of the bailer generated UTLs may be proposed on a site-by-site basis if it can be demonstrated that this exceedance may be due to excessive turbidity. For all ongoing or future investigation, the approved "low-stress" UTLs must be used.

AFCEE must submit a Final Basewide Background Study which adequately addresses the comments listed above for our review and approval within 30 days of receipt of this letter. If you have any questions regarding this review please contact Mr. Mark Weegar in the TNRCC's Federal Facilities Restoration Team in Austin at (512) 239-2360, mail code MC127, or via e-mail at mweegar@tnrcc.state.tx.us.

Sincerely,

Paul S. Lewis

Paul S. Lewis, Manager
Corrective Action Section
Pollution Cleanup Division

PL/ap/mw

cc: Mr. Gary Miller, EPA Region 6, Dallas, TX
Ms. Ginny King, Natural Resource Trustees, PCD (MC142)
Mr. Tim Sewell, TNRCC Region 4, Duncanville (MC RO4)
Ms. Tennis Larson, TNRCC Corrective Action Section (CA120)

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